



Patent
Docket 265/263

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

John R. Havens et al.

Serial No.: 09/922,349

Filed: August 3, 2001

For: PERMEATION LAYER ATTACHMENT
CHEMISTRY AND METHOD

)
) **Group Art Unit:** Not Yet Assigned

)
) **Examiner:** Not Yet Assigned

DECLARATION OF THEODORE M. WINGER

Commissioner for Patents
Washington, D.C. 20231

Sir:

I, Theodore M. Winger, do declare that:

1. I am employed by Nanogen, Inc., as a Staff Scientist. I received a Ph.D. in Chemical Engineering from Georgia Institute of Technology in 1997. I am an inventor named on this application and I have a financial interest in Nanogen, Inc., the assignee.

2. With regard to electronically addressable microchip technology, one critical feature is the stability of the permeation layer under increasing current density.

3. I have conducted experiments in which I compared permeation layer stability for microchips wherein linker molecules were attached to the electrode surface by vapor deposition versus microchips wherein linker molecules were attached to the electrode surface by solution phase

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CERTIFICATE OF MAILING
(37 C.F.R. §1.8a)

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as First Class Mail in an envelope addressed to the Commissioner for Patents, Washington, D.C. 20231.

Date of Deposit

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Denise Doss

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Denise Doss

Signature of Person Mailing Paper

reaction. The results of my comparison are set forth in Table II of the specification of the present application.

4. These data show that, for microchips wherein linker molecules were attached to the electrode surface by solution phase reaction, the permeation layer is stable at a current density of less than $0.10 \text{ nA}/\mu\text{m}^2$. However, for microchips wherein linker molecules were attached to the electrode surface by vapor deposition, the permeation layer is stable at a current density of at least $500 \text{ nA} \div 5000 \mu\text{m}^2$, or $0.10 \text{ nA}/\mu\text{m}^2$.

5. Vapor deposited microchips are therefore superior microchips in terms of permeation layer stability. Moreover, it was entirely unexpected that vapor deposited microchips would have superior stability characteristics.

6. I further declare that all statements made in this Declaration of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the patent and application involved in the present proceedings.

Dated: July 22, 2002

Theodore M. Winger
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